

CONLEY
ASSOCIATES

Memorandum

To: Engineering Department, Town of Acton
From: Leslie Grant, Transportation Engineer
CC: Planning Board
Date: October 19, 2007
Re: The Residences at Quail Ridge

In March of 2007, Conley Associates, Inc. conducted a Traffic Impact Study (TIS) for the addition of 175 units of age restricted housing (and conversion of the 18-hole golf course to a 9-hole course) to the existing Quail Ridge Country Club in Acton, Massachusetts. In June of 2007, Conley Associates, Inc. completed a supplemental memorandum detailing the traffic impact a 7,500 square foot restaurant would have on the Level of Service (LOS) results presented in the TIS. The following memorandum addresses the traffic concerns raised in the September 19, 2007 memorandum issued by the Acton Engineering Department to the Planning Board (only items regarding the Traffic Study have been addressed in this correspondence).

Traffic Study

- 1. The applicant has submitted a traffic impact study as required by Subdivision Rules and Regulations section 9.9. In summary, the study concludes that the added traffic volumes will not create unsafe conditions at the study area intersections. The study also revealed that the unsignalized intersections of Great Road, Harris Street & Acorn Park Drive and Great Road at Skyline Drive are currently operating at LOS F and will continue to operate at such with or without the project. No mitigation measures were proposed by the engineer, however, the added traffic from the proposed development plus other generated traffic from the study area's other development may expose and worsen the effects of existing deficiencies.**

As stated in the TIS, the unsignalized approaches at the intersections of Great Road at Harris Street and Acorn Park Drive and Great Road at Skyline are currently operating at LOS F and will continue to operate at LOS F with or without the project in place. However, the LOS F conditions experienced by the unsignalized approaches to Great Road is not an uncommon occurrence along a busy roadway such as Great Road (Route 2A/119). As shown in the TIS, the through movements along Great Road are operating with little to no delay.

Based on a site plan change, Conley Associates, Inc. recalculated the traffic impact of the project assuming all project traffic would only utilize Skyline Drive to access and egress the site. Additionally, the analysis assumed a more conservative growth rate and no credit for the reduction in the number of holes on the golf course based on comments received from the Planning Board and Engineering Department. Even with these more

conservative assumptions, the exiting traffic volume on Skyline Drive does not meet the four hour or peak hour signal warrants. However, Conley Associates, Inc. recommends that the left turn lane on the Skyline Drive approach to Great Road be extended to accommodate a queue of approximately four or five vehicles.

2. **The Traffic Study for this project determines an annual increase for traffic to be about 0.5%. Upon our review of other recent traffic studies in North Acton, we found that the following reports were performed using a 1.7 percent or greater growth factor.**

To satisfy the concerns raised by the Town Planner and Engineering Department regarding growth rates, the No Build and Build traffic volumes were recalculated using a more conservative growth rate of 1.7 percent per year. In addition, as stated in the previous section, no credit was assumed for the reduction in the number of holes on the golf course and Conley Associates, Inc. used the timing changes recently implemented by MassHighway at the signalized intersection of Great Road at Main Street.

The signalized intersection of Great Road at Main Street is expected to operate at LOS D or better under all conditions and the unsignalized approaches to Great Road will continue to operate at LOS F with or without the project in place.

3. **We recommend that the traffic engineer consider the possibility of proposing a deceleration lane for eastbound traffic on Great Road that would be turning into Skyline Drive.**

Conley Associates, Inc. reviewed the traffic impacts of adding a right turn lane on Great Road (for vehicles turning onto Skyline Drive). From a capacity standpoint, this additional turn lanes would not improve the level of service for movements on Great Road however, it would allow through vehicles on Great Road to bypass the vehicles turning right onto Skyline Drive. The reason the right turn lane would not improve operations at the intersection is that level of service at an unsignalized intersection is determined by the movement under stop control (Skyline Drive). Because the traffic volumes on Great Road are relatively high during the peak hours, vehicles on Skyline Drive (and other stop controlled approaches along Great Road) are experiencing lengthy delays during the peak hours (level of service F conditions). At this time, the proponent is not recommending the addition of a right turn lane on Great Road.

4. **If the accesses to Palmer Lane & Hazelnut Street are restricted for emergency vehicles only, we recommend that the traffic engineer reanalyze the impacts to the intersection of Skyline at Great Road. The traffic engineer should make recommendations as to any improvements to the alignment of Skyline Drive, modifications to Great Road, etc...that might be necessary in order to maintain an acceptable level of service at this intersection. In addition, we recommend an analysis considering only one-way traffic entering the site from Palmer Lane & Hazelnut Street and its impact to Skyline Drive at Great Road.**

Based on concerns from residents in the Acorn Park Drive neighborhood, the site plan has been revised so that vehicular access to site will be restricted to Skyline Drive and only emergency access will be provided via Palmer Lane.

The traffic analysis was recalculated assuming that Skyline Drive would be the only access and egress to and from the site. In addition, based on other concerns raised by the Planning Board and the Engineering Department, Conley Associates, Inc. used a more conservative growth rate of 1.7 percent, assumed no credit for the 9-hole golf course reduction, and used the recently updated timings completed by MassHighway at the signalized intersection of Great Road at Main Street. These timing changes include a northbound advance for Great Road (heading towards Skyline Drive) and optimized timings for each approach. It was determined that with a higher growth rate, no credit for the golf course, and with the recently updated timings that the signalized intersection of Great Road at Main Street is expected to operate at LOS D or better under all conditions and the unsignalized approaches to Great Road will continue to operate at LOS F.